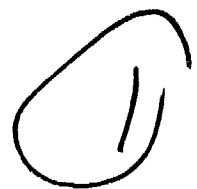


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**Technical Report 945**



# **The Determinants of Child Care Use and Retention in the U.S. Army**

**Hyder A. Lakhani and Sharon Ardison**  
U.S. Army Research Institute

**December 1991**

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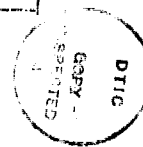
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**Technical Report 945**

# **The Determinants of Child Care Use and Retention in the U.S. Army**

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## FOREWORD

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The Personnel Utilization Technical Area of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducts research in the areas of soldier retention, performance, and family factors. Questions have recently arisen regarding the Army's ability to predict the use of child care facilities and their effect on retention.

This report quantifies predictors of child care use and its impact on spouses' desire for soldiers' retention/career plans.

This research is being conducted under a Letter of Agreement (LOA) between the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) and the U.S. Army Community and Family Support Center (CFSC) entitled "Sponsorship of ARI Army Family Research." The LOA, dated 18 December 1986, made CFSC the sponsor of the research. The results were briefed to Lieutenant Colonel Paul Furukawa and Lieutenant Colonel David Westhuis of CFSC. An earlier version of this report was also reviewed by Lieutenant Colonel David Westhuis, CFSC, and Ms. Joy Guenther, Army Child Development Services. The results of this research will help CFSC and the Army Child Development Services plan and improve the development and utilization of child care facilities.



EDGAR M. JOHNSON  
Technical Director

# THE DETERMINANTS OF CHILD CARE USE AND RETENTION IN THE U.S. ARMY

## EXECUTIVE SUMMARY

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### Requirement:

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducts research on manpower, personnel, training, and human factors of significance and interest to the U.S. Army. Questions have been raised about the Army's ability to determine the demand for child care and its effect on retention desires of spouses of soldiers.

### Procedure:

The authors developed data from survey of spouses of soldiers in the Annual Survey of Army Families, 1987. Samples of about 2,000 spouses of officers and 5,000 spouses of enlisted soldiers were used to analyze demand for alternative types of child care. Step-wise regression equations were estimated to predict the demand for child care as a function of several predictors. The spouse's desire for soldier's retention was explained in a separate regression equation as a function of child care used, while holding the effects of other variables constant.

### Findings:

The results suggest that enlisted families generally use informal child care facilities, such as home care or baby sitting, and officers tend to use such formal facilities as Child Development Centers, perhaps because the former cannot afford the higher fees charged by the Child Development Centers. The regression results reveal that demand for child care increases with an increase in (1) spouse employment, (2) soldier rank, (3) volunteer time spent, and (4) number of months at current location. The demand decreases with an increase in age of the youngest child. An increase in child care use, however, tends to increase spouses' desires for soldiers' retention and Army career plans, while holding the effects of other predictors, such as soldier's satisfaction with Army life, soldier's education, soldier's total years of service, the number of dependents, and age of youngest child, unchanged.

#### Utilization of Findings:

This research suggests that Army policy makers should design a fee schedule for Child Development Centers that varies directly with income or rank. That is, lower ranked soldiers should be charged lower fees. Also, since child care services provided by the Army increase spouses' desires for soldiers' retention, the Army should continue and expand these services.

# THE DETERMINANTS OF CHILD CARE USE AND RETENTION IN THE U.S. ARMY

## CONTENTS

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	Page
INTRODUCTION . . . . .	1
LITERATURE REVIEW . . . . .	1
Determinants of Child Care Use in the Civilian Sector .	1
Military Child Care Needs . . . . .	5
Types of Child Care Centers . . . . .	6
DATA . . . . .	6
DESCRIPTIVE STATISTICS . . . . .	7
Families Predominate in the Army . . . . .	7
Use of Army Child Care Facilities . . . . .	9
CONUS vs. OCONUS Distribution of Child Care Facilities .	11
Distribution of Child Care Homes in the U.S. and Abroad . . . . .	13
Army Child Development Centers in the U.S. and Abroad .	15
Army Child Care Utilization by Rank . . . . .	17
METHODOLOGY FOR PREDICTING CHILD CARE USE . . . . .	30
Predictors of Utilization by the Army as a Whole . . . .	31
CHILD CARE USE REGRESSION RESULTS AND DISCUSSION . . . . .	32
SPOUSES' PERCEPTIONS AND DESIRES FOR RETENTION OF SOLDIERS . . . . .	38
Retention Regression Results and Discussion . . . . .	39
CONCLUSIONS AND POLICY IMPLICATIONS . . . . .	57
FUTURE RESEARCH . . . . .	59
REFERENCES . . . . .	61

## CONTENTS (Continued)

Page

### LIST OF TABLES

Table	1.	Description of civilian pre-schoolers' care by type of care . . . . .	4
	2.	Description of families with children and use of child care . . . . .	8
	3.	Type of child care services used by Army families . . . . .	10
	4.	Description of child care services by location: CONUS vs. OCONUS . . . . .	12
	5.	Sponsorship of home care by location: CONUS vs. OCONUS . . . . .	14
	6.	Sponsorship of Child Development Centers by location: CONUS vs. OCONUS . . . . .	16
	7.	Use of child care by rank: Enlisted vs. officer . . . . .	18
	8.	Use of home care by rank: Enlisted vs. officer . . . . .	20
	9.	Use of Child Development Centers by rank: Enlisted vs. officer . . . . .	22
	10.	Type of child care by hours of use . . . . .	24
	11.	Type of home care by hours used: Army sponsored vs. non-Army sponsored . . . . .	27
	12.	Type of Child Development Centers by hours used: Army sponsored vs. non-Army sponsored . . . . .	29
	13.	Regression results for child care use by all soldiers: Officers and enlisted combined . . .	35
	14.	Regression results for child care use by enlisted soldiers . . . . .	36
	15.	Regression results for child care use by officers . . . . .	37

## CONTENTS (Continued)

	Page
Table 16. Regression results for spouses' perceptions of soldiers' retention intentions: Officers and enlisted combined . . . . .	41
17. Regression results for spouses' perceptions of soldiers' retention intentions: Enlisted soldiers . . . . .	42
18. Regression results for spouses' perceptions of soldiers' retention intentions: Officers . . .	43
19. Regression results for spouses' desires for soldiers' Army career plans: Officers and enlisted combined . . . . .	45
20. Regression results for spouses' desires for soldiers' Army career plans: Enlisted soldiers	47
21. Regression results for spouses' desires for soldiers' Army career plans: Officers . . . . .	48
22. Regression results for spouses' perceptions of soldiers' Army career plans: Officers and enlisted combined sample . . . . .	50
23. Regression results for spouses' perceptions of soldiers' Army career plans: Enlisted soldiers . . . . .	51
24. Regression results for spouses' perceptions of soldiers' Army career plans: Officers . . . . .	52
25. Regression results for spouses' desires for soldiers' Army career plans: Officers and enlisted combined sample . . . . .	54
26. Regression results for spouses' desires for soldiers' Army career plans: Enlisted soldiers . . . . .	55
27. Regression results for spouses' desires for soldiers' Army career plans: Officers . . . . .	56

# THE DETERMINANTS OF CHILD CARE USE AND RETENTION IN THE U. S. ARMY

## 1.0 INTRODUCTION

The provision of high-quality child care at an affordable price is a policy issue confronting both the civilian and the military sectors in the 1990s. In order to address the issue in the civilian sector, the 101st Congress introduced over 100 bills containing provisions such as establishing quality standards for day care centers, payment of subsidies to the centers, or tax credits to the families with children of certain age (Hofferth, 1990). The Congress also passed the Military Child Care Act of 1989, which required training standards for staff members working in the Department of Defense Child Development Centers, addressed a progressive fee scale, and outlined certification procedures and inspection requirements (Military Family Resource Center, 1990).

The affordability of child care depends not only on tax credits for families but also on family income. The family income is simply the sum of the income of the soldier and the spouse. The spouse's income increases with an increase in her/his employment for pay. Apart from employment for pay in the civilian sector there is also the tradition of considerable volunteer work performed by spouses of soldiers in general and that of officers in particular. Hence the use of day care facilities is likely to be directly related to spouse employment for pay or to volunteer activities. As in the civilian sector, the use of day care is also likely to be related to the ages of the children.

Unlike the civilian sector, however, the use of day care facilities in the military is more likely to be directly related to an increase in the amount of time spent at a particular location. This is because in the military, on an average, about half of the soldiers are transferred every two years (Vernez and Zellman, 1987). Hence it takes some time for the family to obtain child care services because of the waiting lists maintained by the centers.

## 2.0 LITERATURE REVIEW

### 2.1 Determinants of child care use in the civilian sector

#### 2.1.1 Female employment

In the last two decades, a major shift in the employment status of women has taken place: more women, including those with children, are working outside the home. Nearly half of the women between ages 25 and 44 were employed in the early 1970s. That number jumped to 70% in 1990 and is predicted to approach 80% by the year 2000 (Skrzycki, 1990). The increase in female employment includes women with children under six years of age. For example, in the early 1980s, approximately one-half of all mothers with children under age 6 (the pre-schoolers) were employed outside the

home (U.S. Bureau of the Census, 1984). The comparable labor force participation rate for mothers with pre-school children in 1970 was only 30% (Waldman, 1983). In October 1988, it was reported that 57% of women with preschool age children and 72% of mothers with children ages 6-17 were in the labor force (Martin, 1988). For women with infants (under age 1) the increase has been even greater: while in 1970, only 24% of these mothers were working, in 1985 that doubled to nearly 50% (Hayghe, 1986). This is in contrast to 1960 when most women left the work force during pregnancy and remained out of the labor force at least until their youngest child entered school. Klerman and Leibowitz (1990) conclude that the generous tax treatment of child care expenses, along with improved market opportunities for their spouses, tend to promote earlier return to work among new mothers during the 1980s.

An alternative approach is to view the situation not from the vantage point of the mother but from that of the child. Sixty four percent of the children under 18 have mothers working in the labor force, whether part- or full-time, temporary or permanent. The remaining 36% of the children have mothers who do not work at all. If current trends continue, it is predicted that by 1995, over three-quarters of school-age children and two-thirds of pre-school children will have a mother in the work force (Hofferth, 1987).

The increase in the labor force participation rate of married women has generated an increase in the number of dual earner couples. This rate increased from 40% in 1950 to 70% in 1990 and is projected to increase to about 80% in the year 2000 (Skrzycki, 1990). This increase considerably enhanced the child care affordability of these families and brought about a change in family roles and division of labor (Morrison, 1989). As a consequence of the woman's employment situation, the availability of a spouse at home to watch over the children is not as commonplace as in previous generations. All of these changes have generated a growing demand for purchased child care services.

#### 2.1.2 Forms of Civilian Child Care Facilities

As noted above, the number of children with working mothers has risen and continues to climb. How these children are to be cared for is an issue of current debate. Some still maintain that in-home care by a family member is the best choice, while others see the necessity of relying on non-family care and/or sites other than one's home. Some parents also appear to prefer formal child care for their children because of the availability of professionally trained teachers and scientific equipment at the day care centers. Table 1 shows that while informal child care such as child care by a relative or a baby sitter at home decreased considerably between 1965 and 1985, the use of more formal, non-relative, care such as by family day care homes or day care centers or nurseries increased significantly during this period

(Hofferth, 1989). Similar increasing trends in the formal sources of child care facilities can be expected to occur in the military sector as well because of comparable changes in military spouse employment, income, education, and adoption of labor-saving household technologies.

TABLE 1

## Distribution of civilian pre-schoolers' care by type of care

Type	1985 %	1965 %
Relative	48	62
Sitter in Home	6	15
Family Day Care Home	22	16
Day Care Center or Nursery	23	6
Total	<u>100</u>	<u>100</u>

The current child care system presents a patchwork arrangement because the parents use not only a variety of different care giving forms but they also use different combinations of services at specific times for select purposes (Clarke-Stewart, 1982; Kamerman, 1983; Zigler & Gordon, 1982). For example, the working family of a child needs child care service not only during day time but also in the evenings for keeping medical etc. appointments (Sugarman, 1989).

## 2.2 Military child care needs

Today's soldiers are more likely to be younger, married, and with family than the soldiers of the past (Hunter, 1982). Prior to 1940, all enlisted men had to be bachelors upon entering the service. Therefore, the issues centering around family needs were irrelevant to military members of this period. During World War II, married men were allowed and encouraged to join the armed forces, but the acceptance of an accompanying family still had not been acknowledged. It was not until the 1960s that the recognition of family needs was accepted as a matter of policy (McCubbin, 1976). It was at this time that a variety of services were designed to meet military family needs, such as, medical/dental plans, youth programs, and dependent schools. And, finally, with the beginning of an All-Volunteer Force in 1972, the proportion of married service members (especially enlisted) has risen significantly.

### 2.2.1 Proportion of Married Soldiers

Data from the Department of Defense, Survey of Families, 1985, reveal that a majority of officers (79 percent) and enlisted (60 percent) soldiers are married (Morrison, 1989). In the 1978/79 DOD Survey the statistics were only slightly lower: 78 percent for officers and 57 percent for enlisted members. In addition, a random sample of civilians drawn from the 1980 U.S. Census and matched by age, race, and sex to the military population showed that the military personnel are more likely to be married than are civilians (Doering, 1987).

As a result of the changes referred to above, the needs of the soldiers have been altered. The Army has tried to march in step with these needs and has increased its commitment to the families. This commitment was described in the Army Chief of Staff's 1983 White Paper, The Army Family (Department of the Army, 1983) as a partnership between the Army and Army families. This White Paper has been updated annually at the Army Family Action Plan conference by addressing additional family needs in the follow-ups. Some specific family services include: family medical and dental care, spouse employment, relocation assistance, youth services, and

initiation or expansion of child care facilities.

### 2.2.2 Military Spouse Employment

The civilian spouse employment trends noted above also exist in the Army community. For example, between 1979 and 1987, the proportion of employed spouses of enlisted soldiers increased from 50% to 67% and that of the officers' increased from 53% to 57% (Griffith et al., 1989). In addition, as in the civilian sector, there are more single parents in the Army as a result of higher divorce rates. Special military requirements such as relocations for permanent change of stations and hence separations from extended family, and deployment make the problems of child care more severe relative to the civilian sector (Thompson, 1989).

### 2.3 Types of child care centers

In order to meet the needs of the soldiers, the Army has sponsored its own child care facilities. The services come in two basic forms: Child Development Centers and Army Family Care Homes (Thompson, 1989). Each serves a basic family need for care delivery but in a different fashion. The Centers operate in a more structured, institutional manner, while the Family Homes, although licensed, provide a more informal, familial setting. The Army has established and enforced strict quality standards for both the Centers and the Homes.

The Army has made major commitments to the provision of services, programs and facilities for families of military personnel (Griffith, 1986). Since 1980, the Army has approved 96 facilities with a total construction cost estimate of \$177 million (Wasserman, 1989). The Army manages more than 600 Child Development Centers and 12,000 Family Care Homes. Between the two forms of child care, the average daily attendance reaches nearly 80,000 children (Maze, 1989). Approximately half of these child development facilities are located overseas (38% in Europe and 7% in Korea, Hawaii, and Alaska). The remainder are spread almost equally across the United States. Temporary, drop in, and mobile units are allowing new experimental forms to be tried, as the use of Family Homes and on-post Child Development Centers appear to be already maximally utilized.

### 3.0 DATA

In order to analyze the determinants of child care use in the U. S. Army, we utilized data from the Department of the Army, Annual Survey of Army Families (ASAF), 1987. This survey was sponsored by U. S. Army Community and Family Support Center. The sampling population was the spouses of active-duty officers and enlisted soldiers. The surveyed spouses included both civilian men and women who were themselves not on active duty, but were married

to active-duty soldiers. The sampling frame was designed to include only civilian spouses of active duty soldiers, since unmarried soldiers and dual military careerist families tend to have different characteristics and concerns. We restrict this analysis to female spouses because the sample did not contain enough observations on the male spouses of the female soldiers. (Griffith, 1986, p. 3-2). Also, Thompson (1989) notes that a majority (63%) of the users of selected day care facilities are soldiers married to civilian spouses. The remaining 37% included soldiers such as dual military careerists and single parents.

The survey was distributed to 20,272 Army spouses of active duty soldiers (spouses of 8,141 officers and 12,131 enlisted personnel). This stratified probability sample represented 10% of the universe of 80,000 spouses of officers and about 3% of the universe of 337,000 spouses of enlisted soldiers. The sample was stratified by pay grade, an indicator of income and army experience. More than 12,000 questionnaires were returned, yielding an overall response rate of 62%. From the 8,141 survey instruments sent to officers, 5,696 were returned, giving a response rate of 70%. For enlisted soldiers, a total of 6,540 out of the 12,131 were returned (54% response rate).

#### 4.0 DESCRIPTIVE STATISTICS

##### 4.1 Families predominate in the Army

Table 2, presenting the data from the 1987 Annual Survey of Army Families, shows that three out of every four (76%) families had children. Of the families with children, nearly two-thirds (65%) used some form of child care. Analysis of child care use by age distribution of children show that 73% of the children between ages 0 and 5 were receiving some form of child care. This is comparable with the civilian sector where between 70% and 75% of children under the age of 5 with employed mothers used some form of non-parental child care (U.S. Bureau of the Census, 1983).

TABLE 2

---

Distribution of families with children and use of child care

	% Used	% Children
--	--------	------------

---

Families with children		76
Use	65	
Don't Use	35	
Families without children		24
	Total	100

---

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Source: Annual Survey of Army Families, 1987

#### 4.2 Use of Army child care facilities

The types of day care facilities included in the ASAF87 are the following:

- o nursery/preschool/elementary/secondary school
- o child care centers (Army-sponsored/non-sponsored) on-post and off-post
- o family homes (licensed) sponsored by the Army
- o baby sitters (non-licensed), in homes owned by the sitter
- o "other," i.e. care by a relative.

The preceding categories are comparable with child care facilities in the civilian sector (Table 1) which include care by a: (i) relative, (ii) sitter in home, (iii) family day care home, and (iv) day care center or nursery. (Hofferth, 1989; Hofferth, 1987; Herr, 1989).

For this analysis, the ASAF87 nursery/pre-school and elementary/secondary school categories are combined under the umbrella category called "schools". Also, both the on-post, Army sponsored and off-post, non-Army sponsored child care centers are grouped under the category of "Child Development Centers" (CDC). These two forms of care constitute the formal care facilities. The second group of child care facilities comprise of such quasi-formal facilities as the Army Family Homes and the baby sitters. These are categorized as quasi-formal facilities because although the care givers operate out of homes or Army quarters, they function under the guidance of Army standards, are licensed and must abide by the military rules. Finally, care given by a sitter at the sitter's own home is defined as informal child care because this care is not supervised or licensed by the Army.

Table 3 shows that the pattern of child care usage in the Army is similar to that reported in Table 1 for the civilian sector (Hofferth, 1987). The majority (52%) of the families use quasi-formal or an informal child care: 11% use Army-sponsored home care or licensed baby sitters; 41% use non-licensed baby sitters. An additional 7% have their children stay at home alone, and 16% use "other" sources, such as a relative. In contrast to these informal uses, only 13% use the services of Child Development Centers (10% are located on-post and are Army-sponsored, 3% are off-post and are civilian-sponsored). The other source of formal facilities, schools, comprise 12%. In short, formal sources account for 25% of child care (13% in CDCs and 12% in schools). Most of the child care usage is at the informal facilities.

TABLE 3

Type of child care services used by Army families		
	% Used	% Used
Home Care (supervised)		52
Army sponsored	11	
Non-Army sponsored	41	
Child Development Centers		13
Army sponsored	10	
Non-Army sponsored	3	
Schools		12
At Home (unsupervised)		7
Other		16
Total		100

Recall that in Table 1 for the civilian sector, there is a shift in usage from informal to formal facilities. Such a shift resulted in a greater need for sponsored and more structured care. Similar shifts can be expected to occur in the military because of the trends similar to those in the civilian sector such as an increase in spouse employment due to rising wages, adoption of labor-saving household technologies that release the domestic supply of labor from the household chores, and an increase in educational levels of Army spouses. The Army is, therefore, well advised to concentrate its future activities in expanding such formal child care facilities as the Child Development Centers and the schools, instead of such quasi-formal and informal facilities as the Army-sponsored Home Care or licensed baby sitters.

#### 4.3 CONUS VS OCONUS distribution of child care facilities

The ASAF data show that 70% of the Army families are located in the Continental United States (CONUS) and 30% are located Outside of the Continental United States (OCONUS). If the distribution and use of the child care facilities were in direct proportion to the location of these families, we would expect to see a similar pattern of child care use. Table 4 shows that the percentage breakdown of CONUS versus OCONUS across three categories of use, namely, "Schools," "At Home," and "Other" is approximately the same -- 70% CONUS and 30% OCONUS. The child care use of the two other facilities, namely, (Army Family) Home Care (supervised or licensed baby sitters) and Child Development Centers, however, shows a slight departure from the norm: the 38% OCONUS rate appears greater by about 8% from the expected rate of 30%. In short, OCONUS use of Home Care and CDCs is greater than expected, relative to the use of these facilities in CONUS.

TABLE 4

## Distribution of Child Care Service by Location: CONUS Vs. OCONUS

Type	CONUS % Used	OCONUS % Used	TOTAL %Used
Home Care (supervised)	62	38	100
Child Development Centers	62	38	100
Schools	70	30	100
At Home (unsupervised)	69	31	100
Other	70	30	100

#### 4.4 Distribution of Child Care Homes in the U.S. and abroad

Table 5 shows the categorical distribution of Family Home Care into Army versus Non-Army sponsored child care. It reveals that only 11% of the 52% share of Home Care was accounted for by the Army-sponsored facilities, the remaining 41% being accounted for by the non-Army sponsored facilities. Of the Army-sponsored facilities, 56% were located in the OCONUS, and the CONUS locations accounted for only 44%. The higher percentage in OCONUS can be attributed to the fact that similar civilian facilities are not likely to be available in OCONUS. Even if these facilities are available abroad, the U.S. soldiers are likely to confront such utilization barriers as language problems, information gaps about availability, and problems of transportation away from the posts. Hence the demand for and supply of these facilities in OCONUS appears to exceed that in the CONUS locations.

TABLE 5

Sponsorship of Home Care by Location: CONUS Vs. OCONUS

Type		% Used
Army Sponsored Home Care		11
CONUS	44	
OCONUS	56	
Non-Army Sponsored Home Care		41
CONUS	69	
OCONUS	31	

#### 4.5. Army Child Development Centers in the U.S. and abroad

Table 6 shows that the distribution of Army-sponsored Child Development Centers in CONUS and OCONUS is similar to that of the Army Family Homes. For example, even though only 30% of Army families are located abroad, 47% of the use of Army-sponsored Child Development Centers occurs in OCONUS. This distribution is reversed for the non-Army sponsored civilian centers. With 30% of our forces abroad, only 17% of the use of the CDCs is overseas. Conversely, 83% of the use of the non-Army CDCs is in the CONUS, while only 70% of our soldiers are in the CONUS. The reasons for this disproportionate pattern of use are likely to be the same as that for the Army Family Homes. Language barriers and a lack of familiarity with customs and culture, and transportation problems may hamper one's ability to use CDCs abroad.

TABLE 6

Sponsorship of Child Development Centers by Location: CONUS Vs  
OCONUS

Type	% Used	% Used
Army Sponsored CD Centers:		10
CONUS	53	
OCONUS	47	
Non-Army Sponsored CD Centers:		3
CONUS	83	
OCONUS	17	

#### 4.6 Army child care utilization by rank

The ASAF 87 survey asked a sample of Army wives to identify the ranks of their spouses. All ranks were included: enlisted (from E1 to E9) soldiers, warrant officers (W1 through W4), and commissioned officers (O1 through O7+). We broke down the use of child care by enlisted versus commissioned officers and excluded warrant officers because of their very small sample size. Table 7 shows that type of child care facility used appears to vary by rank. In general, enlisted soldiers tend to rely more on quasi-formal and informal sources (Home Care by baby sitters and "Other," i.e., by relatives) while officers use the more formal types (child development centers and schools).

In our weighted sample, 63% of the respondents were spouses of enlisted soldiers and 37% were spouses of officers. This was approximated to be a general distribution of 60% enlisted to 40% officers. In order to increase the number of officers available for the survey, oversampling of the officer group was undertaken. Table 7 reveals that the percentage of enlisted soldiers using both types of informal sources (68% for home care and 71% for "other") exceeds the percentage of the enlisted soldiers in the sample (63%). Therefore, enlisted soldiers tend to use a relatively higher proportion of informal care. On the other hand, officers made greater use of formal sources (50% for centers and 45% for schools) compared to the percentage (37%) of officers in the sample. Therefore, we conclude that officers tend to use relatively greater proportion of formal care. This can be explained by the fact that the charges levied by the formal care centers are such that the officers can afford to pay them while the enlisted soldiers cannot. The proposed use of relatively lower rates for enlisted soldiers is likely to reduce, if not eliminate, this disparity in the use pattern of enlisted and officers. (In the Army as a whole, approximately 90% of Army service members are enlisted and 10% are officers.)

TABLE 7  
Use of Child Care by Rank: Enlisted Vs. Officer

Type	% Used	% Used
Home Care (unsupervised):		52
Enlisted	68	
Officer	32	
CD Centers:		13
Enlisted	50	
Officer	50	
Schools:		12
Enlisted	55	
Officer	45	
At Home (unsupervised):		7
Enlisted	57	
Officer	43	
Other:		16
Enlisted	71	
Officer	29	

#### 4.6.1 Army Home Care Use by Rank

Table 8, showing the use of Army Family Homes by rank, reveals that the pattern noted above remains unchanged: the enlisted soldiers have a greater than average probability (70% Army-sponsored and 68% non-Army sponsored versus 30% & 32% respectively for officers) of using the Army sponsored form. One of the reasons for the greater use of the Army-sponsored home care facilities by the enlisted soldiers may be its cost. Care by a relative or a neighbor in an Army Family Home, whether sponsored or not sponsored by the Army, can be less expensive than the institutional facilities. Since the enlisted (especially E1-E4) pay scales are lower, their disposable income for these services is more limited than that of the officers.

TABLE 8

Use of Home Care by Rank: Enlisted Vs. Officer

Type	% Used	% Used
Army Sponsored Home Care:		11
Enlisted	70	
Officer	30	
Non-Army Sponsored Home Care:		41
Enlisted	68	
Officer	32	

#### 4.6.2 Army Versus Non-Army Child Development Centers by Rank

For the Child Development Centers (CDC), the use pattern with respect to rank is reversed. Officers use relatively more CDC care, especially the Army sponsored CDCs (TABLE 9). For example, fifty two percent of the Army sponsored and forty-five percent of the non-Army sponsored centers were used by officers, even though they made up only thirty-seven percent of this sample. This result may be the consequence of the greater likelihood of officers having been housed on-post where Army-sponsored centers were located. Officers, because of their higher pay scales, were also more likely to be able to afford the center based fees. In addition, officers may have greater mobility because of car ownership and thus easy accessibility to off-post centers. This pattern of utilization by rank is likely to change in the future, however, due to the passage of the Military Child Care Act of 1989 which requires the Armed Forces to establish a sliding fee scale for the users of child care centers. The sliding scale of fees will be based on income -- the higher the income, the higher will be the fees charged by the centers (Military Family Resource Center, 1990). The relatively higher fees charged to officers should decrease their future use of the CDCs.

TABLE 9

## Use of Child Development Centers by Rank: Enlisted Vs. Officer

Type	‡ Used	‡ Used
Army Sponsored CD Centers:		10
Enlisted	48	
Officer	52	
Non-Army Sponsored CD Centers:		13
Enlisted	55	
Officer	45	

#### 4.6.3 Hours of Use by Type of Child Care Centers

For the purpose of this study, we classified hours of use of child care into three categories: (i) occasional (< 10 hours per week), (ii) part-time (10 to 30 hours/week), and (iii) full-time (30+ hours per week). Table 10 shows that, in general, the Army families tend to use child care in equal proportions of frequency: a little over a third use them on an occasional basis, another third are part-time users, and the remaining third use them on a full-time basis.

TABLE 10

## Type of Child Care by Hours of Use

Type	% Used
Home Care (unsupervised)	
occasional	44
part-time	28
full-time	29
CD Centers	
occasional	37
part-time	26
full-time	37
Schools	
occasional	22
part-time	32
full-time	46
At Home (unsupervised)	
occasional	61
part-time	24
full-time	15
Other	
occasional	37
part-time	29
full-time	34

Table 10 also shows that when this use pattern is broken down by form of child care, the distribution changes. As expected, the less formal types of care centers such as Home Care, licensed and unlicensed, (61% & 44%) and "Other" (37%), i.e., care by neighbors and friends, were basically occasional types of care. On the other hand, formal care centers such as Schools (46%) were more full time in nature. The Child Development Centers were equally split between occasional (37%) and full-time (37%) care. Interestingly, the part-time care did not predominate in any of the cases.

#### 4.6.4 Army-sponsored Home Care

Table 11 shows that while civilian or non-Army sponsored Home Care or baby sitters operate on an occasional (50%), drop-in basis, the Army Family Homes are more likely to be full-time care (39%) establishments. Because of the typical on-call, temporary nature of the civilian Home Care baby sitting arrangement, it may cater to those in need of more occasional care. It allows for flexibility, the ability to make arrangements on short notice, and scheduling on an ad-hoc basis. Army sponsored Home Care, on the other hand, requires some form of regular service with designated care schedules and specific standards. These Army Family Home sites are more likely to establish hours of service and develop rosters of care receivers. As such, these routines would take on a greater full-time or even part-time schedule instead of an occasional, drop-in, service.

#### 4.6.5 Child Development Centers

Table 11 gives the distribution of Army versus the non-Army sponsored Child Development Centers (CDCs), namely, the on-post and off-post centers. In general, the on-post CDCs are Army-sponsored while the off-post CDCs are non-Army sponsored. The non-Army sponsored CDCs operate mainly on a full-time basis (44%). This is in keeping with the civilian sector's need for services during a normal 30 to 40 hour week. Relatively little occasional or drop-in care is used (20%). The Army, on the other hand, sponsors CDCs to accommodate a variety of service members' schedules. It allows for occasional (43%) drop-in care, part-time (23%) regular help and full-time (34%) assistance to meet the requirements of soldiers with varying schedules.

TABLE 11

Type of Home Care by Hours Used: Army Sponsored Vs. Non-Army Sponsored.

Type	%Used
Army Sponsored Home Care:	
occasional	29
part-time	32
full-time	39
Non-Army Sponsored Home Care:	
occasional	50
part-time	29
full-time	21

#### 4.6.6 Utilization of Child Development Centers

Table 12 presents the pattern of use of the Army and non-Army sponsored Child Development Centers. From this table, it is observed that while Army-sponsored CDCs are used largely for occasional, drop-in service, the non-Army sponsored CDC are used mostly for full-time service.

TABLE 12

Type of Child Development Centers by Hours Used: Army Sponsored  
Vs. Non-Army Sponsored

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Type	% Used
<hr/>	
Army Sponsored CD Centers:	
occasional	43
part-time	23
full-time	34
Non-Army Sponsored CD Centers:	
occasional	20
part-time	36
full-time	44

---

## 5.0 METHODOLOGY FOR PREDICTING CHILD CARE USE

Current civilian literature (Hofferth, 1989) supports the importance of both maternal (spouse employment) and child (age of child) factors in explaining the need for and use of care giving services. Hofferth (1989) cites the need for care as a consequence of mother's employment. Ruopp (1979) noted that the use of child care facilities appeared to be a function of age of child, parental employment status, and family structure instead of such factors as race, ethnicity or education. The semi-annual survey of Army personnel (Military Personnel Survey, 1987) revealed that 44% of officers and 27% of enlisted soldiers did not use Army child care because their children were too old. For officers at the O4 through O6 levels, nearly two-thirds (63%) listed age of child as their main reason for non-use of child care service.

As a measurement of the ages of the children, we have used standard categories: infant toddler (0-2), preschool (3-5), school-age (6-11), teenage (12-17), and young adult (18-20). These age groups were denoted on an increasing scale varying from 1 to 5 for this analysis. It was hypothesized that an increase in age would be negatively related to the use of child care services.

Spouse employment is measured by two variables: (i) hours worked for pay last week, and (ii) weeks worked for pay in the previous year; i.e. 1986. The former is to investigate the average weekly period of employment in order to develop a standard for labor market involvement. The latter measure is to determine stability of employment history over a year's period.

In addition to demographics on the ages of children and labor market trends we also investigated other variables. It was hypothesized that the rank of the soldier, a measure of earnings, would increase the demand for child care because the ability to pay or affordability increases with rank.

Another factor of interest is the volunteer work performed by spouses. Volunteerism is a form of employment even though its status is one without fee for services. We hypothesized that even though this activity does not increase family income, it required family time and created a need for child care while the mother was away from home. The survey collected information on two types of volunteer services: military and civilian volunteers. We hypothesized that since they both placed similar time demands upon spouses, the child care needs were likely to be positively related to volunteer services performed by the spouses. Furthermore, given the history of greater volunteer activity among officers' wives relative to enlisted soldiers'

wives, we expect a greater impact of officers' spouses volunteering on child care use. The Department of Defense data of 1985 (Doering, 1987) show that volunteer work is much more common among officers wives (51%) than enlisted wives (22%).

It is also hypothesized that an increase in length of stay at a given location tends to increase child care use. The longer the period of time a soldier is a local resident, the greater the chances of qualifying and being selected from the waiting list.

The outcome variable, general child care use, is measured as a dichotomous variable (user versus non-user). Our interest is in comparing the use of any form of child care service with the use of none at all.

### 5.1 Predictors of Utilization by the Army as a Whole

We first look at the use of child care facilities for the Army as a whole and subsequently break this down to analyze separately their use by enlisted soldiers and officers.

The descriptive statistics revealed that 74 percent of women with children under age six used child care services; for those with children between 6 and 11, the percentage fell to 68. In the age category 12 to 17 the percentage dropped to 23%, and to 5% for the age group 18 to 20. Of those children in child care, nearly three quarters (73%) are under the age of six. The breakdown of child care use by age of child is as follows: age 0 to 2 (46%), age 3 to 5 (27%), age 6 to 11 (23%), age 12 to 17 (4%) and age 18 to 20 (less than 1%). Therefore, we hypothesize that families with younger children would tend to use more child care than those with older ones. An increase in age of a child in a family reduces the demand for child care for two reasons: first, the child begins to go to formal Department of Defense Dependents School; second, the older child can take care of the younger child(ren) at home.

The second explanatory variable, spouse employment, measured as the average number of hours worked per week. The degree of a mother's involvement in the work force directly affects her use of services. As the number of hours worked increases, so does the likelihood of her use of child care. The descriptive data revealed that seventy six percent (76%) of the employed mothers used some form of child care.

A soldier's rank is a proxy for his pay grade. The lower ranked soldiers used relatively less of the child care services. This may be a result of the cost factor; with lower pay scales, one can not afford the care. The descriptive data revealed that

among the enlisted families, sixty four percent used child care services; while among officers, the services were used to a slightly higher degree; i.e., sixty seven percent. Within the enlisted and the officer categories, child care use increased with an increase in rank. For example, among enlisted, the greatest percentage of child care users (89%) were in the E4 to E7 categories. Among officers, child care use for the O3 to O5 categories accounted for the highest percentage of use (86%). The percentage of child care use by these higher ranked soldiers was greater than their percentage share in the Army because the non-commissioned officers in the ranks E4 through E7 comprised 73% of the enlisted ranks, and the officers in the ranks O3 through O5 were 65% of the total number of officers.

Volunteerism was measured in terms of the number of hours of volunteer work performed for military-affiliated and civilian organizations during the last three months. We hypothesized that an increase in the number of hours spent in volunteering in either organization would be directly related to the use of child care services. In regard to differences between the two forms of volunteering, it is likely that volunteering in a military organization would be more positively related to child care use than in the civilian organization because the former is almost required of the officer spouses.

In the survey, the long term indicator of labor market involvement of the soldier's spouse was the number of weeks worked in 1986 for pay. We hypothesized that an increase in the number of weeks worked in the previous year would tend to increase the use of child care services.

Many soldiers have to be on the waiting lists of the child care facilities before they can use them. To incorporate the effect of this variable, the survey collected information on the duration of the soldier's stay at the survey location. We hypothesized that the longer the stay of a soldier at a location, the greater would be the use of child care facilities. The duration of stay was measured in terms of the number of months at the location.

## 6.0 CHILD CARE USE REGRESSION RESULTS AND DISCUSSION

Table 13 shows the results of regression equation of child care use for the combined group of enlisted and officers' spouses. Seven major predictors significantly influence the use of child care facilities. Six of these predictors are positively related to child care use. First, the short term predictor of participation in labor force, namely, hours worked for pay last week, is directly related to child care use. An increase in short term spouse employment tends to increase child care use. Second, an increase in rank also increases child care use because of the

affordability criterion discussed earlier. Third, an increase in volunteer time spent in military organizations tends to increase child care use. Fourth, an increase in volunteering in the civilian organizations also increases child care use. Fifth, the long term determinant of employment, namely, weeks worked for pay in 1986, is also positively associated with the use of child care use. Sixth, the number of months that a family has stayed at the current location also increases use of child care significantly because of the exhaustion of a long waiting list at the location due to a time lapse at the location. The only negative determinant of child care use is the age of the youngest child perhaps because the child care centers do not normally accept children below a specific age, such as two years.

The results for enlisted spouses, reported in Table 14, are only slightly different from the combined group results noted above. There are two major departures. First rank does not enter the equation, perhaps, because enlisted soldiers, irrespective of their ranks, cannot generally afford to use child care facilities. Second, volunteering in military organizations drops out of the equation because, unlike the spouses of officers, spouses of enlisted soldiers are not required to volunteer their services in military organizations. Instead, volunteering in civilian organizations such as church, schools, etc. is significantly related to use of child care facilities by these enlisted spouses. The results for child care use by spouses of officers, shown in Table 15, show that while economic factors such as short term and long term employment variables are still significant, rank of an officer drops out of the equation. This is perhaps due to the fact that all officers, irrespective of their rank, can afford to and hence tend to use child care facilities. As regards volunteering, it is noted that while both military and civilian volunteering tend to increase child care use, the Beta value for military organizations is greater than that for the civilian organizations. Therefore, officers tend to use greater amount of child care when they are volunteering for military organizations than that for the civilian organizations.

TABLE 13

Regression results for child care use by all soldiers: Officers and enlisted combined

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Age of child	-.041 *	.126	.126
2	Hrs. worked for pay last week	.004 *	.161	.034
3	Soldier's rank	.007 *	.172	.012
4	Volunteer time: Military Org.	.028 *	.179	.007
5	Volunteer time: Civilian Org.	.023 *	.186	.004
6	Weeks worked for pay in 1986	.011 *	.186	.003
7	Number of months at location	.016 *	.188	.002
	Intercept	.634 *		

N = 5,149

\* = Significantly different from zero,  $p < .01$

TABLE 14

Regression results for child care use by enlisted soldiers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Age of child	-.035 *	.068	.068
2	Hrs Worked for pay last week	.005 *	.13	.061
3	Volunteer time: Civilian org.	.029 *	.135	.005
4	Weeks worked for pay in 1986	.009 *	.139	.005
5	Number of months at location	.021 *	.139	.005
	Intercept	.606 *		

N = 3,171

\* = Significantly different from zero,  $p < .01$

TABLE 15

Regression results for child care use by officers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Age of youngest child	-.045 *	.265	.265
2	Hrs worked for pay last week	.003 *	.273	.007
3	Volunteer time: Military org.	.023 *	.281	.008
4	Volunteer time: Civilian org.	.019 *	.285	.004
	Intercept	.894 *		

N = 1,976

\* = Significantly different from zero,  $p < .01$

## 7.0 SPOUSES' PERCEPTIONS AND DESIRES FOR RETENTION OF SOLDIERS

The economic returns to the Army from providing subsidized child care facilities can be quantified in terms of its effect on retention of the soldiers. Retention of soldiers, in general, and that of high-quality soldiers in particular, is a perennial problem confronted by the Army. The provision of subsidized day care facilities can, however, increase retention because it tends to increase the family's satisfaction with the Army.

To determine the impact of use of day care facilities on retention while statistically controlling for the effect of other variables, we developed a regression model of retention. Since the survey was addressed to spouses of soldiers, we did not have data on soldiers' retention intentions. Instead, the survey asked the spouses about their perceptions of soldiers' retention intentions: "At the present time, what are your spouses's Army career plans?". The responses varied from 1 = to leave before completion of his/her present obligation, to 4 = to stay in the Army until retirement. We used these responses as values of the dependent variable to denote spouses' perceptions of the soldiers' retention intentions. The literature (e.g. Gade et al., 1988) on retention shows that the spouses' perceptions and the soldiers' retention behavior are positively correlated. We hypothesized that the spouses' perceptions of the soldiers' retention are likely to be positively related to the following independent variables.

First, an increase in child care used by a family tends to increase retention because the Army subsidized child care facilities so that it reflects an increase in monetary value or pay received by a soldier. Second, an increase in spouse's satisfaction with Army life tends to increase the soldier's satisfaction and hence can result in an increase in retention. Third, an increase in a soldier's years of service tends to increase retention perceptions of spouses because it develops the family's taste for Army life and also vests in the retirement benefits. Fourth, an increase in the number of dependent children tends to increase retention desires because of the availability of several Army services such as youth programs, medical benefits, Department of Defense Dependents' schools, and library services. Fifth, an increase in soldier's age tends to increase retention because the older soldiers tend to get more risk-averse and hence are likely to stay in the Army. Sixth, the availability of off-post transportation can increase retention because it tends to increase the spouse's mobility in the community. This, in turn, tends to enable the spouse to seek employment or recreational services, thereby increasing the spouse's desire to stay.

The explanatory variables whose relationship with the

dependent variable on retention cannot be hypothesized are at least three in number. First, soldier's quality, measured in terms of years of education, cannot be specified a priori because we do not know if high quality soldiers would tend to stay or not. The literature on this aspect is mixed (Lakhani and Gilroy, 1986) and depends on military occupational specialty of the soldier. While soldiers in combat units tend to stay, those in non-combat occupations tend to quit. Unfortunately, the survey did not ask the spouses about the military occupation of the soldiers so that we do not have these data. Second, the type of housing, on-post or off-post, unit of a spouse can have a negative or positive effect on retention because its quality appears to vary across states in the U. S. as well as across countries in the OCONUS. Third, the number of months spent at the current location can increase retention if the location is environmentally desirable and conversely for undesirable locations. Therefore, the effects of these three variables are relegated to empirical outcomes of the equations.

## 7.1 Retention Regression Results and Discussion

Table 16 shows the results of spouses' perceptions of soldiers' retention intentions for the combined sample of officers and enlisted soldiers. The results reveal that the model explains about 30% of the total variance. Most of the variance is, however, explained by the soldiers' total years of active service so that senior soldiers are more likely to stay in the Army. The Beta values reveal that almost all of the predictors have the expected signs and are statistically significant ( $p < .01$ ). These Beta values suggest that spouses' perceptions of soldiers' retention intentions increase with an increase in: (i) soldiers' total years of service, (ii) spouse's satisfaction with Army life, (iii) the number of dependent children of the family, (iv) the use of child care services, (v) the soldier's age, and (vi) the number of months spent at the current location. It is interesting to note that an increase in stay at the current location tends to increase spouses' perceptions of retention intentions of the soldiers.

Table 17 shows the results of perceptions of spouses of enlisted soldiers. The results are similar to the results for the combined sample noted above because enlisted soldiers comprise over 60% of the total sample included in Table 16. The predictors explain 30% of the variance. The Beta values reveal that enlisted spouses' perceptions of the soldiers' retention intentions increase with an increase in: (i) soldiers' total years of service, (ii) spouses' satisfaction with Army life, (iii) soldier's age, and (iv) the number of dependent children of the family.

Table 18 presents the results of perceptions of spouses of

officers about the retention intentions. The model explains 25% of the variance. The results are similar to that in Table 16, except for two differences. First, an increase in an officer's education is predicted to decrease the spouse's perception of the officer's retention intention. Therefore, high quality officers are not likely to stay after the current term of commissioning expires. Second, the number of months at a current location is likely to decrease, not increase, the spouse's perception of officer's retention intention. This is perhaps because officers do not like long term postings at a location relative to enlisted soldiers. The results for the other predictors are similar to that in Table 16, namely, the spouse's perception of the officer's retention intention increase with an increase in: (i) the officer's years of service, (ii) spouse's satisfaction with Army life, (iii) child care used by the family, and (iv) the number of dependent children of the family.

TABLE 16

Regression results for spouse's perception of soldier's retention intention: Officers and Enlisted combined

Variable Number	Variable Name	Partial R**2	Model R**2	Beta Value
1	Soldiers' Total Yrs of Active Service	.223	.223	.177 *
2	Spouse's Satisf with Army Life	.069	.292	.069 *
3	Number of Depen Children	.002	.294	.034 *
4	Child Care Used	.001	.296	.058 *
5	Soldiers' Age	.001	.297	.031 *
6	Months at Current Location	.001	.298	.043 *
	Intercept			1.991

N = 5,350

\* = Significantly different from zero,  $p < .01$

TABLE 17

Regression results for spouse's perception of a soldier's retention intention:  
Enlisted Soldiers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Soldier's Total Yrs of Active Service	.183 *	.234	.234
2	Spouse's Satisf with Army Life	.205 *	.304	.069
3	Soldier's Age	.048 *	.307	.003
4	Number of Depen Children	.039 *	.309	.001
	Intercept	1.934		

N = 3,261

\* = Significantly different from zero,  $P < .01$

TABLE 18

Regression results for spouse's perception of soldier's retention intention:  
Officers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Soldier's Total Yrs of Active Service	.187 *	.167	.167
2	Spouse's Satisf with Army Life	.166 *	.230	.063
3	Soldier's Education	-.051 *	.241	.011
4	Child Care Used	.089 *	.245	.004
5	Months at Current Location	-.024 *	.249	.003
6	Number of Depen Children	.039 *	.252	.001
	Intercept	2.608		

N = 2,088

\* = Significantly different from zero,  $p < .01$

Apart from spouses' perceptions of soldiers' retention intentions, it is interesting to examine spouses' desires for soldiers' retention plans. Gade et al (1988) found that, of those who told them that they were going to stay, 73% reported that their spouses had positive attitude about the Army, while only 5% reported that their spouses were negative. Since an increase in spouses' desires for soldiers' retention tends to increase retention, we predicted spouses' desires for retention by regressing them on several possible predictors. Table 19 shows the results for the combined group of officers' and enlisted soldiers' spouses. The results reveal that all of the seven predictors are statistically significant in predicting spouses' desires for soldiers' retention. The results also show that spouses' desires for soldiers' retention increase with an increase in a soldier's: satisfaction with Army life, total years of service, age, the use of child care services, the number of dependent children and the number of months at a current location. The only negative predictor of spouse's desire for retention is the soldier's education. Thus, spouses of high quality soldiers desire that the soldiers do not stay in the Army.

TABLE 19

Regression results for spouse's desire for soldier's Army career plans:  
Officers and Enlisted combined

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Spouse's Satisf with Army Life	.301 *	.201	.201
2	Soldier's Total Yrs of Active Service	.145 *	.287	.086
3	Soldier's Education	-.022 *	.291	.004
4	Child Care Used	.082 *	.293	.002
5	Number of Depen Children	.038 *	.295	.002
6	Soldier's Age	.031 *	.296	.009
7	Months at Current Location	.037 *	.297	.009
	Intercept	1.831		

N = 5,350

\* = Significantly different from zero,  $p < .01$

Tables 20 and 21 respectively show the results of regression equations for enlisted soldiers' and officers' spouses desires for retention of the soldiers. The results for enlisted soldiers shown in Table 20 reveal that they are similar to that in Table 16, namely, that the spouses' desires for soldiers are positively related to: soldiers' satisfaction with Army life, soldiers' total years of service, soldier's age, and the number of dependent children. Soldier's education is, once again, negatively related to the spouses' desires for retention of the soldiers. The predictor, child care used, is not significant for the enlisted soldiers. It is, however, significant for officers, as shown in Table 21. The four other predictors for the spouses of officers are similar to that for the enlisted soldiers' spouses.

TABLE 20

Regression results for spouse's desire for soldier's Army career plans:  
Enlisted Soldiers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Spouse's satisf with Army life	.294 *	.192	.192
2	Soldier's total yrs of active service	.134 *	.286	.094
3	Number of depen children	.043 *	.289	.003
4	Soldier's age	.045 *	.290	.001
5	Soldier's education	-.021 *	.292	.001
	Intercept	1.857		

N = 3,261

\* = Significantly different from zero,  $p < .01$

TABLE 21

Regression results for spouse's desire for soldier's Army career plans:  
Officers

Variable Number	Variable Name	B Value	Model R <sup>2</sup> 2	Partial R <sup>2</sup> 2
1	Spouse's satisf with Army life	.308 *	.206	.206
2	Soldier's total yrs of active service	.168 *	.284	.078
3	Soldier's education	-.047 *	.292	.007
4	Child care used	.125 *	.298	.006
5	Months at current location	.076 *	.301	.002
	Intercept	1.863		

N = 2,088

\* = Significantly different from zero,  $p < .01$

Retention intentions, plans or desires is a short term goal because it refers to only the current term of enlistment or commission for the Army. The long term goal refers to career plans to stay in the Army beyond the current term and possibly until retirement from the Army. The spouses' perceptions of the soldiers' career plans are, therefore, analyzed by regressing this variable on a set of predictors. Table 22 shows the results for the combined groups of officers and enlisted soldiers' spouses. It reveals that spouses' perceptions of soldiers' career plans are directly related to: (i) spouses' desires for soldiers' retention, (ii) soldiers' total years of service, (iii) soldiers' education, and (iv) availability of off-post housing. The separate results for enlisted spouses in Table 20 shows that the results are similar to that in Table 19 for (i) spouses' desires for soldiers' retention, and (ii) soldiers' total years of active Army service. The predictors for the two other variables do not, however, enter the equation. Instead, the two other variables that enter the equation are: (i) soldier's age, and (ii) soldier's satisfaction with Army life. Table 24 shows that, for the perceptions of spouses of officers' career plans are predicted significantly by the first two variables, namely, (i) spouses' desires for soldiers' retention, and (ii) soldier's total years of service. An officer's education is, however, negatively related to perceptions of career plans so that spouses of high quality officers perceive that the officers will not stay in the Army beyond the current term of commission.

TABLE 22

Regression results for spouse's perception of soldier's Army career plans:  
Officers and Enlisted combined

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Spouse's desire for soldier's retention	.609 *	.536	.536
2	Soldier's total yrs of active service	.091 *	.580	.044
3	Soldier's education	.008 *	.582	.002
4	Type of current housing	-.041 *	.583	.001
5	Transportation is available off post	.015 *	.583	.001
	Intercept	1.831		

N = 5,350

\* = Significantly different from zero,  $p < .01$

TABLE 23

Regression results for spouse's perception of soldier's Army career plans:  
Enlisted soldiers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Spouse desires soldier's retention	.621 *	.545	.545
2	Soldier's total yrs of active service	.103 *	.591	.046
3	Soldier's age	.033 *	.592	.001
4	Spouse's satisf with Army life	.025 *	.593	.001
	Intercept	.695		

N = 3,261

\* = Significantly different from zero,  $p < .01$

TABLE 24

Regression results for spouse's perception of soldier's Army career plans:  
Officers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Spouse desires soldier's retention	.569 *	.518	.517
2	Soldier's total yrs of active service	.088 *	.546	.028
3	Soldier's education	-.023 *	.548	.002
	Intercept	1.514		

N = 2,088

\* = Significantly different from zero,  $p < .01$

Tables 25 shows the regression results for spouses' (combined group of officers and enlisted spouses) desires for soldiers' long term career plans to stay in the Army. The results reveal that these desires are positively related to: (i) spouses' perceptions of soldiers' retention plans, (ii) soldiers' satisfaction with Army life, soldiers' total years of service, and (iv) child care used. The negative relationship of the desires is associated with (i) soldiers' education and (ii) availability of off-post transportation. Separate results for the enlisted spouses in Table 26 reveal that the first two predictors, namely, spouse's perception of soldier's retention plans and (i) soldier's satisfaction with Army life are positively and significantly related to spouses' desires for enlisted soldiers' Army career plans. The availability of transportation off-post is, once again, related negatively to the spouses' desires for soldiers' Army career plans. Table 26 also shows that while an increase in the number of dependent children tends to increase enlisted spouses' desires for soldiers' career plans, the age of the youngest child is negatively related to these desires. The results for officers' spouses, shown in Table 27, are similar for the first two predictors. An increase in total years of service of an officer is, however, positively related to spouses' desires for soldiers' career plans. An increase in child care used is also related positively to the desires. The effect of this variable is, however, different from that for the enlisted spouses' desires for the soldiers' career plans perhaps because the enlisted families cannot afford child care facilities so that it did not in the equation in Table 26.

TABLE 25

Regression results for spouse's desire for soldier's Army career plans:  
Officers and enlisted soldiers combined

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Spouse's percept of soldier's plans	.671 *	.536	.536
2	Spouse's satisf with Army life	.169 *	.576	.041
3	Soldier's education	-.018 *	.579	.003
4	Soldier's total yrs of active service	.023 *	.581	.002
5	Transp is available off-Post	-.021 *	.582	.001
6	Child care used	.043 *	.583	.001
	Intercept	.538		

N = 5,350

\* = Significantly different from zero,  $p < .01$

TABLE 26

Regression results for spouse's desire for soldier's Army career plans:  
Enlisted soldiers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Spouse's percept of soldier's plans	.663 *	.546	.546
2	Spouse's satisf with Army life	.157 *	.581	.035
3	Number of dependent children	.027 *	.582	.001
4	Transp is available off-post	-.021 *	.582	.001
5	Age of youngest child	-.051 *	.583	.001
	Intercept	0.676		

N = 3,261

\* = Significantly different from zero,  $p < .01$

TABLE 27

Regression results for spouse's desire for soldier's Army career plans:  
Officers

Variable Number	Variable Name	B Value	Model R**2	Partial R**2
1	Spouse's percept of soldier's plans	.695 *	.518	.518
2	Spouse's satisf with Army life	.193 *	.575	.057
3	Soldier's total yrs of active service	.038 *	.578	.003
4	Child care used	.063 *	.579	.001
	Intercept	.192		

N = 2,088

\* = Significantly different from zero,  $p < .01$

Five types of child care facilities are available to Army families. These are: (i) home care (supervised, Army-sponsored and non-Army sponsored, or civilian facilities), (ii) home care (non-supervised), (iii) Child Development Centers (Army-sponsored and non-Army sponsored, or civilian facilities), (iv) schools, and (v) other, such as care by relatives.

As in the civilian sector (Grossman, 1981), most children of military working mothers are still cared for by friends, relatives, or neighbors in informal arrangements, even though other avenues, such as Child Development Centers have increased in recent years. Although the percentage of informal users (68%) is high, this trend is on the decline in the civilian sector. On the other hand, the trend toward more formal or institutional care (centers and schools) is on a steady increase in the civilian sector and is likely to grow in the military sector as well.

Overall, a pattern of child care use by location (CONUS versus OCONUS) holds constant over the five general types of child care. Although Home Care and Centers tend to show a slightly higher use overseas, the pattern across all forms remains basically the same. When we break down the two child care forms (Home Care and Centers) by military versus civilian, however, the picture changes drastically. Army-sponsored Home Care shows predominant use overseas, whereas non-Army sponsored, or civilian, Home Care is more prevalent in the United States. Similarly, non-Army sponsored centers are used more in the states, while the Army sponsored centers have a greater than average likelihood of use abroad. This suggests a tendency for greater use of Army sponsored facilities abroad. Whether this is a consequence of supply (policy regarding greater Army-sponsored availability) or demand (higher price of foreign alternatives) cannot be analyzed in this report for non-availability of required data. Nevertheless, this pattern of use shows considerable dependence by Army families upon the Army facilities in the overseas arena. In order to continue supporting the needs of its customers abroad, the Army should focus its attention on this in-need group and adequately deliver those forms of needed care.

Enlisted soldiers tend to use the more informal sources of care and officers the more formal types. Home Care and "other" forms have a greater tendency to attract enlisted families. Day Care Centers and School Systems are more likely to be used by officers.

The use pattern remains constant for Home Care whether the source is military or civilian. Enlisted soldiers make greater use of this form of baby sitting regardless of whether it is the informal non-Army sponsored or the quasi formal Army Homes.

Officers have a greater than average tendency to use Child Development Center care than enlisted. Although both types of center care draws more officers, officers show a greater tendency to utilize Army sponsored centers than the non-Army sponsored centers. This use pattern may be attributed to the fact that the charges for the use of these facilities at the time of this survey, namely 1987, were not directly related with income. Hence enlisted soldiers had to pay the same charges as those paid by officers. Since the former could not afford these charges relative to the latter, the former group used these facilities relatively less. In future, however, the Congress has mandated the charges to be lower for the lower income soldiers relative to those paid by higher income soldiers. Such a change is likely to increase the use of child care facilities by enlisted soldiers in the 1990s.

The hours of use of child care are equally distributed overall: one third use care on an occasional basis, another third use it on a part-time basis and a third use it on full-time basis. This distribution changes once the particular type of child care is specified. Baby sitting, latch key and "other" forms are generally occasional users. Schools are typically full-time in nature. Child Development Centers basically operate both as drop-in and as full-time care facilities and hence are used on a full-time basis.

When we analyze baby sitting or Home Care in the military versus the civilian sector, the picture changes. Army sponsored baby sitting or Homes function on a predominately full-time basis, whereas non-Army sponsored sitters are drop-in or occasional in nature. This proves useful especially to those families in need of full-time care from an Army source. Others who use occasional care use non-Army sponsored sitters' services. Since enlisted soldiers depend upon baby sitting, it appears that their various hourly needs are satisfied by the different forms of child care services. A further investigation may be needed to determine the effect of the cost of care for these relatively low income soldiers.

Prediction of one's use of child care appears to be the most closely related to age of child and employment status of a soldier's spouse. The older the child, the less the likelihood that the family will enlist the services of a care giver. On the other hand, families of younger children, especially those less than 6, show a greater tendency to need and use child care services. A mother's employment status plays a major role, although to a lesser extent than does age of child. The number

of hours worked by the wife is positively related to child care use: the more the number of hours worked, the greater the tendency to utilize some form of child care.

In addition to the above-mentioned explanatory variables, the wife's involvement in volunteer organizations is statistically significant ( $p < .01$ ). For officers, both military and civilian volunteerism adds to the explained variance. The involvement with military volunteer organizations shows a much greater overall influence on the use of child care than the civilian volunteerism. This supports the traditional view of officers' wives as participating at a greater rate in military volunteer organizations. For enlisted spouses, only the effect of participation in civilian volunteer organizations is significant.

## 9.0 FUTURE RESEARCH

With officers' greater tendency to make use of Child Development Centers in general and Army sponsored centers in particular, we may ask why? If it is a consequence of geographic location (officers being more likely to live on post), it could be argued that this is a function of preferential treatment for officers. Do we want to make the centers more equitable as a delivery system and allow enlisted soldiers a greater opportunity for enrollment? Can we scale down the fees for services to make centers a more feasible option? These may be policy issues of importance to the Army, if it seeks to offer affordable, and equitable care. The hypothesis, that officers mostly live in on-post housing and enlisted soldiers predominate in off-post quarters, may be tested from data on housing by rank.

In our regression analysis, the outcome variable chosen was participation in the child care system (use versus non-use). This dichotomous categorization is likely to be limited because the total variance explained did not exceed 30%. This may be due to aggregation bias, namely, offsetting effect of use by source. Since there is considerable variation by type of child care facility, it is suggested that the regression analysis be analyzed further by specific forms of child care. For example, an analysis of the military-sponsored versus the civilian or the non-sponsored form or the informal versus the formal types could be undertaken. A good analysis of all such categories (e.g., non-Army sponsored sitter, Army Family Home, Army Child Development Center, etc.) could be developed to determine the explanatory factors influencing choice of a particular service. Such an analysis would be possible if the sample size, by use category, is sufficiently large to permit quantitative regression analysis.

In addition, the assumption that the relationship is unidirectional in nature is questionable. The variables chosen may not lend themselves to the preceding type of analysis. An alternative suggestion for future research is to test the recursive nature of variables with LISREL (Linear Structural Relations), or a solution of a system of simultaneous equations. This will require a path analysis of the direct and indirect effects of child care use and spouse employment on retention.

Finally, specific economic variables such as the charges levied by child care facilities and their impact on utilization will be collected in future surveys to be conducted by Community and Family Support Center. Analysis of such data will help recommend optimal and/or equitable charges for the child care facilities.

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